

WHAT IS CLAIMED IS:

1. A negative photosensitive lithographic printing plate comprising:

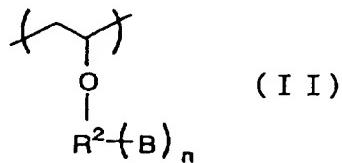
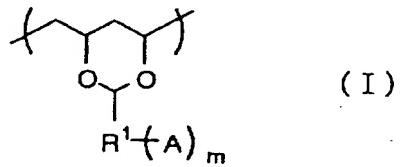
a support; and

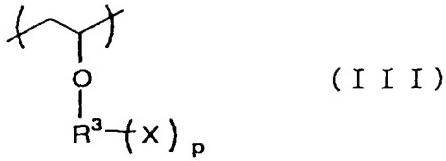
a photosensitive layer containing:

a modified poly(vinyl alcohol) resin binder having a radical-polymerizable group and an acid group; and

at least one of a photo-polymerization initiator and a heat-polymerization initiator.

2. The negative photosensitive lithographic printing plate as claimed in claim 1, wherein the modified poly(vinyl alcohol) resin binder contains: at least one of repeating units represented by formulae (I) and (II); and at least one of repeating units represented by formula (III):





wherein A and B each independently represents a radical-polymerizable group; X represents an acid group; R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> each independently represents a substituted or unsubstituted hydrocarbon group having 1 to 30 carbon atoms, and R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> each has a valent of (m+1), (n+1) and (p+1) respectively; and m, n, and p each independently represents an integer of 1 to 5.

3. The negative photosensitive lithographic printing plate as claimed in claim 1, wherein the radical-polymerizable group has an addition-polymerizable unsaturated bond.

4. The negative photosensitive lithographic printing plate as claimed in claim 1, wherein the radical-polymerizable group has at least one selected from the group consisting of a (meth)acryloyl group, (meth)acrylamide group, allyl group and styrene structure.

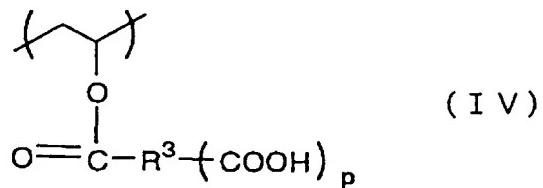
5. The negative photosensitive lithographic printing plate as claimed in claim 1, wherein the acid group has an

acid dissociation constant:  $pK_a$  of 7 or lower.

6. The negative photosensitive lithographic printing plate as claimed in claim 1, wherein the acid group is selected from the group consisting of  $-COOH$ ,  $-SO_3H$ ,  $-OSO_3H$ ,  $-PO_3H_2$ ,  $-OPO_3H_2$ ,  $-CONHSO_2-$  and  $-SO_2NHSO_2-$ .

7. The negative photosensitive lithographic printing plate as claimed in claim 1, wherein the acid group is  $-COOH$ .

8. The negative photosensitive lithographic printing plate as claimed in claim 2, wherein the repeating unit represented by formula (III) is represented by formula (IV):



wherein  $R^3$  represents a substituted or unsubstituted hydrocarbon group having 1 to 30 carbon atoms, and  $R^3$  has a valent of  $(p+1)$ ; and  $p$  represents an integer of 1 to 5.

9. The negative photosensitive lithographic printing plate as claimed in claim 8, wherein  $R^3$  in the formula (IV) contains at least one of an aliphatic ring structure and an

aromatic ring structure.

10. The negative photosensitive lithographic printing plate as claimed in claim 8, wherein R<sup>3</sup> in the formula (IV) contains an aliphatic ring structure.

11. The negative photosensitive lithographic printing plate as claimed in claim 2, wherein the modified poly(vinyl alcohol) resin binder contains:

i) at least one of the repeating units represented by formulae (I) and (II) in an amount of from 1 to 99% by mole; and

ii) at least one of repeating units represented by formula (III) in an amount of from 1 to 70% by mole,  
in which the sum of the repeating unit i) and the repeating unit ii) is 2 to 100% by mole.

12. The negative photosensitive lithographic printing plate as claimed in claim 1, wherein the photosensitive layer further contains a compound having at least one ethylenically unsaturated bond capable of undergoing an addition polymerization.